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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,516	10/25/2002	Rodolfo Paillaman	24-NS-123144	2138

23465 7590 06/10/2004

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EXAMINER	
PALABRICA, RICARDO J	

ART UNIT	PAPER NUMBER
3641	

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/065,516	PAILLAMAN ET AL.	
	Examiner	Art Unit	
	Rick Palabrica	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *3,4,7,8,13,14,17 and 18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 5, 6, 9-12, 15, 16, 19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/1/04, which directly amends claims 1 and 11, has been entered.

The replacement drawings (Figs. 5-7) submitted on 1/02/04 is also approved.

2. Applicant's 4/1/04 submission includes a traverse of the rejection of previous claims under 35 U.S.C. 103(a) based on De Briere et al. (U.S. 4,394,345) in view of Johnson (U.S. 6,332,011). The amended claims still do not define over the De-Briere et al. – Johnson combination. Where the Applicant intends to use the same arguments in said submission to traverse the rejection of the amended claims in this Office Action, the Examiner will now address them for the Applicant's benefit.

Applicant traversed De Briere et al. on the grounds that they neither describe nor suggest positioning the ultrasonic transducers adjacent the bottom of the jet pump beam. It appears that the Applicant further emphasizes this positioning matter by amending the claims to include the additional limitation, "wherein the at least one ultrasonic probe is positioned under the bottom surface of the jet pump beam." Applicant argues that De Briere et al. teach away from the claimed method because they teach examining for beam cracks from below by positioning the ultrasonic

transducers on the sides rather than at the bottom surface of the beam. The Examiner agrees that De Briere et al. teaches a different positioning configuration but this difference is insufficient to patently distinguish the claimed invention. Based on MPEP 2183, the Examiner considers De Briere et al. to be patently equivalent to the claimed invention. Their invention performs the identical function specified in the claim in substantially the same way, and produces substantially the same results as the same element disclosed in the specification. The embodiments disclosed by De Briere et al. are used to perform the same inspection function of a jet pump beam and for examining cracks from below, albeit by a different positioning of the probe relative to the beam. Unless the Applicant can show a new and unexpected result, his invention is not patently different from the applied art in this Office Action (see details in Section 3).

In addition to this equivalence based on De Briere et al. alone, Johnson teaches that ultrasonic testing of reactor structures, e.g., a shroud, can be performed by either projecting the ultrasonic beam from the outer side to the inner side of the shroud or the reverse, i.e., projecting the beam from inner surface to the outer surface of the shroud (see column 1, lines 38+ in Johnson). As discussed in detail in Section 4 below, application of this teaching to the De Briere et al. invention results in a combination (De Briere et al. – Johnson) that renders the claimed invention obvious.

Applicant also traversed the use of Johnson on the grounds that he neither describes nor suggest positioning a phased ultrasonic probe adjacent the bottom surface of a jet pump beam. The Examiner disagrees. Johnson is applied only as a secondary reference and his teaching on the advantages of using a phased array

ultrasonic probe is applied in the modification of De-Briere et al. As secondary reference, Johnson does not have to show all the features of the claimed invention. Otherwise, Johnson would qualify as stand-alone reference that anticipates the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 5, 6, 9-12, 15, 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Briere et al. (U.S. 4,394,345) in view of Johnson (U.S. 6,332,011 B1). De Briere et al. disclose the applicant's claims except for the specifics regarding phased array ultrasonic probes.

De Briere et al. disclose an ultrasonic transducer apparatus and method for examining nuclear reactor jet pump beams for cracking (see Abstract). Note that the purpose of De Briere et al.'s invention is the same as applicant's invention (see, for example, paragraphs 0004 and 0005 of the specification). In fact, the figures in De Briere et al. and in the specification are **nearly identical** (e.g. Fig. 1 in De Briere et al. vs. Fig. 2 in the specification, Fig. 2A in De Briere et al. vs. Fig. 3 in the specification, etc.). Fig. 2A in De Briere et al. clearly illustrates a beam arm comprising a transition portion and a radiused portion adjacent the transition portion, as recited in claim 11.

Both De Briere et al. and the Applicant recognize that beam cracking starts in the upper central portion of the beams (see column 1, lines 20+ in De Briere et al. and paragraph 0004 of the specification).

De Briere et al. disclose a plurality of embodiments (e.g. Figs. 3 and 7) that permit ultrasonic examination of critical beam regions including the raised central portion of the beam and the opening where the threaded bolt passes (see column 3, lines 2+; column 5, lines 1+; column 6, lines 30+). These parts of the beam are disclosed by the Applicant as areas inspected by the claimed invention.

De Briere et al. also disclose examining the jet pump beam for cracks from below (see column 6, lines 3+). The underlined statement clearly shows that De Briere et al. are cognizant that potential jet pump beam cracking can occur not only on the top and side portions of the beam but below the beam, as well.

The above citations of close similarity between De Briere et al. and the claimed invention provides proof that, with the exception of the specific type of ultrasonic transducer (i.e., phased array), De Briere et al. performs the identical function in substantially the same way, and produces the same results as the claimed invention. As to the specific type of transducer, De Briere et al. state that transducers of any suitable kind can be used for transmitting and receiving ultrasonic signals (see col. 6, lines 19+).

Johnson teaches the use of a phased array ultrasonic probe to inspect for signs of cracking in the shroud of a boiling water reactor. He also teaches that more extensive and reliable testing for cracking can be done using this probe (see column 1, lines 58+).

One having ordinary skill in the art would have recognized that both references are in the same field of endeavor, i.e., ultrasonic testing for potential cracks in nuclear components. Note that both De Briere et al. and Johnson apply the same method of ultrasonic testing to detect reactor component cracks, and said artisan would have recognized that the teaching in Johnson would be applicable to De Briere et al. Additionally, Applicant himself admits that ultrasonic phase probes, which exhibit advantages over standard ultrasonic probes, are commercially available (see paragraph 0025 of the specification).

As to the limitations in the claims regarding: a) the use of two ultrasonic phased array probes, i.e., a first probe for examining a first jet pump beam and a second probe for examining a second jet pump beam; or b) re-positioning a probe from one arm of the beam to its second arm, these are cases of duplication of parts having the same function. See MPEP 2144.04. VI. B that states: "[M]ere duplication of parts has no patentable significance unless a new and unexpected result is produced."

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by De Briere et al., by the teaching of Johnson, to use ultrasonic phased array probes (e.g. higher accuracy and reliability), because such modification is no more than the substitution of one ultrasonic testing apparatus and method by another well known ultrasonic testing apparatus and method within the nuclear art.

The above De Briere et al.-Johnson combination, is patently equivalent to the claimed invention, notwithstanding the limitation of positioning the at least one probe under the bottom surface of the beam. See Section 2 above.

4. Claims 1, 2, 5, 6, 9-12, 15, 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Briere et al. (U.S. 4,394,345) in view of Johnson (U.S. 6,332,011 B1). De Briere et al. disclose the applicant's claims except for the specifics regarding phased array ultrasonic probes and their positioning under the bottom surface of the jet pump beams.

As stated in section 2 above, Johnson teaches that ultrasonic testing of a reactor structure, e.g., a shroud, can be done either by placing the probe in the inner or outer surface. This teaching indicates that it is well known in the art to perform ultrasonic testing of a structure using alternative locations for the probe relative to the structure being examined, e.g., top, bottom, sides, upper, lower, over, under, inside, outside, etc., as appropriate.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by De Briere et al., by the teaching of Johnson, to use ultrasonic phased array probes disposed at the bottom surface of the beam, because such modification is no more than the use of a well known alternative location for the probe in the nuclear art.

The Applicant alleges that the apparatus taught by De Briere et al. is incapable of positioning the transducers below the jet pump beam. The Examiner disagrees because

one having ordinary skill in the art would be able to modify the probe carriage such that the probes fit beneath the beam. Note that the jet pump beam described in the claimed invention is almost identical to that disclosed by De Briere et al. If the Applicant can fit his probes underneath the beam, then an artisan can also easily do the same probe fitting by modification of the De Briere et al. carriage.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Jack Keith can be reached on 703-306-5752. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
June 3, 2004

ACTING SPE 3641